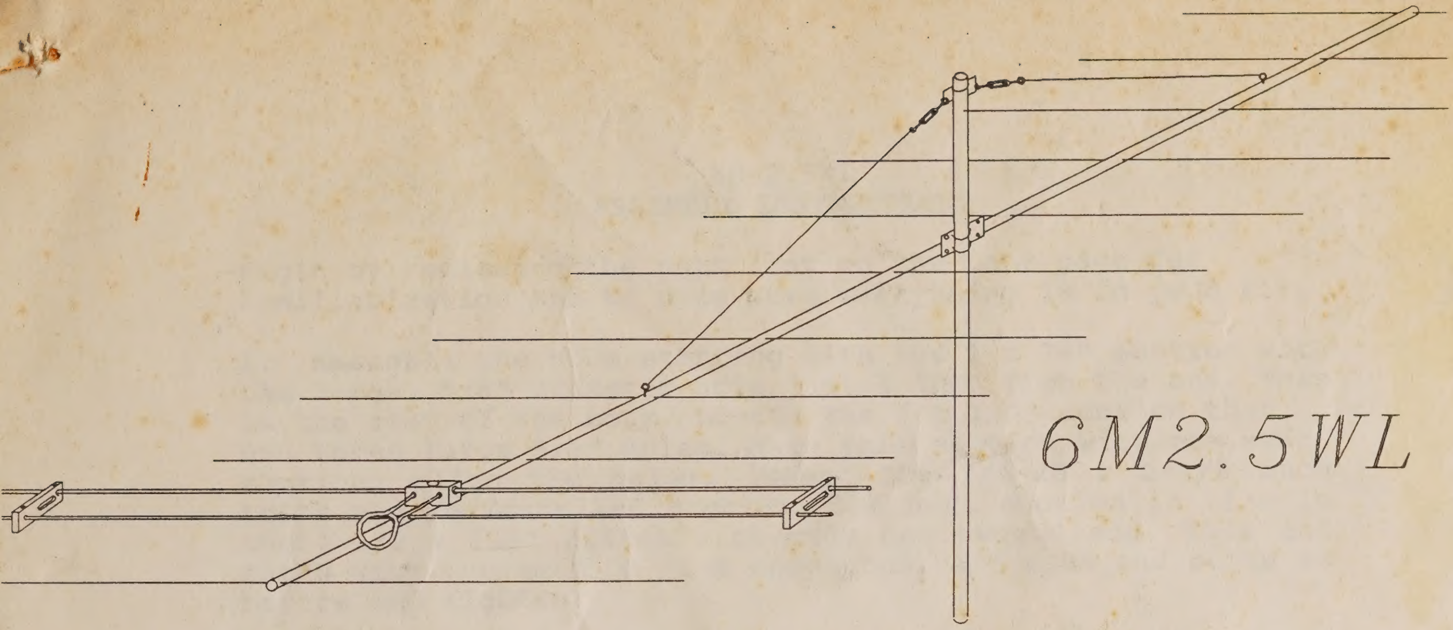


6M2.5WL

6 METER 13DBD ULTRA HIGH GAIN

SPECIFICATIONS

Frequency	50.1 mHz
Bandwidth at 1.5:1	49.7 to 50.5 mHz
Usable frequency range	49.5 to 51.1 mHz
Gain over a dipole	13.0 dBd
Front to back	>22 dB
Beamwidth E-plane	33 degrees
Beamwidth H-plane	39 degrees
First sidelobe	−18 dB
Recommended stacking (horiz. pol.)	30 ft. wide, 26 ft. high
Feed Impedance	50 Ohm nominal
VSWR	1.2:1
Input connector	'N' female
Driven element type	Modified folded dipole
Balun	Half wave 4:1 included
Power handling capability	1500 watts
Element type	1/4" rod w/3' mid sleeve
Boom length	474" / 39.5 ft. / 2WL
Boom support	Overhead Dacron
Boom dimensions	2-1/2" mid 20', 2" tips
Wind load	5.9 sq. ft.
Wind survival	100 mph
Weight	38 lbs.
Shipping weight	47 lbs.

FEATURES

The 6M-2.5WL was conceived and designed to produce maximum gain and performance around 50.1 mHz. Countless hours of computer optimization, range confirmation and on the air testing, resulted in an antenna which is truly remarkable. This single antenna is capable of producing moon echos when pointed at rising or setting moon and running the legal power limit. If you could hear your own moon echos over a one half million mile path, just think what it could do for your signal on long haul tropo, meteor scatter or just an ordinary E or F2 opening. And for the adventurous, imagine what four would do. Some people already have... how about you?

6M-2.5WL
ASSEMBLY INSTRUCTIONS

Begin by reviewing the part list on the last page for familiarization and to make sure everything is in your kit.

1. Assemble the boom starting with the 2 x 74" section with the large, 5/8" diameter hole just 1 inch from the end. This is the rear of the boom. Locate the 2 x 120" section that has three large 5/8" holes. Mate this section with the rear section, align the holes, insert the 1/4-20 x 2-1/2 inch bolts and locknuts and tighten. The next section in line is the 2-1/2 x 120" pieces with only one swaged end. This end mates with the section just completed. Add nuts and bolts as before and tighten.

2. Next mate the second 2-1/2" diameter section, add 1/4-20 x 3" bolts and nuts and tighten. The other 2 x 120" section is next and then the final 2 x 74" tip section. Add nuts and bolts and tighten.

3. It may be convenient to add the boom to mast plate at this time to help hold the boom waist high while installing the elements. The 8 x 8 x 1/4 plate mounts approximately 285 inches from the REAR of the boom. Use two 2-1/2 inch U-bolts and cradles.

NOTE: Separate STAINLESS nuts and lockwashers have been added to the kit for use with all the U-bolts and Eyebolts. TEMPORARILY position the plate parallel with the element holes under the boom. This way the boom can be laid across a bench or bucks and the plate will keep the boom from rotating.

4. Lay out the elements in the order of length. The longest is the reflector and it mounts at the rear end of the boom section in the 5/8" hole one inch from the end. First balance the element across your fore finger to find approximate center. Now slide on one black button insulator to about 1 inch off center, using the 5/8 x 3 inch black plastic PUSHER TUBE.Insert the element through the boom while sliding the insulator on as the element tip is passing through the boom. Center the small ends of the insulator into the boom holes and push both insulators up tight against the boom. Don't bother to center accurately at this point as it is quicker to center all the elements perfectly once they are all in place.

5. In the next 5/8" hole install the 3/8 x 105" tube using the same button insulators as in step #4.

6. NOTE; THE ELEMENTS DO NOT NECESSARILY TAPER IN LENGTH. Continue installing elements in the following order:

109"	D1
109"	D2
106-1/8"	D3
106-1/2"	D4
106"	D5
104	D6
104	D7
106	D8
105-1/2	D9 (Front director)

7. Now begin centering the elements using a tape measure. REFER to the ANTENNA DIMENSION SKETCH for one side exposed dimensions.

8. Double check your centering by looking for identical half length dimensions on either side of the boom.

9. Install the stainless KEEPER WASHERS by starting them with your fingers gently on each side at the end of the 3/8 sleeve. Then, Using the PUSH TUBE, slide the keeper up against the button insulator. During this operation DON'T LET THE ELEMENT SLIDE THROUGH THE INSULATOR! Repeat on the other side. Continue installing the keepers on the rest of the elements.

10. Orient the DRIVEN ELEMENT and connector block so the single female 'N' connector faces the front. Mount it 6 inches behind the other 3/8 inch diameter element using a 1/4-20 x 2-1/4 inch stainless bolt and tighten securely at this time.

11. Install the long shorting bars between the two 3/8 inch diameter elements at this time. Position the bars right at the ends of the shorter tubes. Install the black vinyl caps on the long tips of the driven element. NO SWR adjustment should be necessary for a nearly perfect match at the low end of 50 mHz but adjusting these bars should allow you some optimization if you care to place the minimum SRW somewhere OTHER THAN 50.1 mHz.

12. Attach the half wavelength balun loop assembly to the connectors on the back of the connector block. HOLD THE CONNECTOR BODY GENTLY WITH PLIERS OR CRECENT WRENCH and tighten the CONNECTOR NUT gently with a 7/16 inch end wrench or equivalent to seal the 'O' ring in each connector. These connectors as well as their female counterparts all have 'O' ring seals so taping or use of coaxseal (tm) or other sealant isn't, necessary but if it makes you feel better, go ahead and seal it your way.
It can't hurt.

13. Strap the balun loop down with a large, black Nylon cable tie but not too tight...just enough to keep it from bouncing around.

14. Install the two 5/16 x 4 inch EYEBOLTS with the eyes on the same side of the boom as the connector block. The Eyebolt holes are 66 and 90 inches from the boom. Separate STAINLESS nuts and lockwashers have been added to the kit. Install and tighten the nuts.

NOTE: Forty-one feet of 5/16 inch Dacron rope has been provided for the over-boom support cable. Approximately 19 feet is needed for the rear support and 22 feet for the front. We have left it up to you to cut just in case you decide to mount the boom to mast plate other than at the Balance point 285 inches from the rear of the boom. (The antenna may not quite balance there yet but it should be real close after you put on the feedline). About 18 inches of rope is allowed at each end of each piece for you to make a connection and have some spare if needed.

15. Start by taking two turns through the eyebolt. Then add three, TIGHT half hitches. TUG on the long part as hard as possible to set the knot. SEAL the ends of the rope with a cigarette lighter or butane torch. The remaining rope may be laid next to the long section and taped there. Repeat this attaching procedure at the front eyebolt.

16 A temporary mast should be installed at this point in the boom to mast plate. Loosen the 2-1/2 U-bolts and position the plate in its final orientation. NOTE: The antenna should be mounted with the connector block on top of the boom. Install the mast U-bolts and insert a temporary mast of 4 feet or longer in length. Mount the turnbuckle plate on the mast with the last U-bolt JUST above the boom until the threads of the hooks and eyes just break into the inside of the turnbuckle.

17. Trust us on this one. Begin with the rear rope and put two loops through the eye of the rear turnbuckle. Pull all the slack out of the rope and add the three tight half hitches as you did on the other end. Now repeat this for the front rope. At this point now the ropes should be reasonably tight and in parallel with the boom. Now slide the turnbuckle plate assembly up the mast until the boom is bowed up slightly. Tighten the U-bolt at this height and lean on, press down or otherwise put added tension on the rope. Make sure the half hitches are up tight against the eyes. When you feel the knots have taken a set and there is no more give in the rope assembly, adjust the turnbuckle and/ or the U-bolt holding the turnbuckle plate until the boom is straight and level.

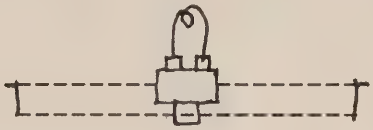
18. NOW sight down the boom and align the elements in each boom section. Loosen the bolts at the boom joints if necessary. The bolt holes allow a bit of clearance for this operation. Retighten securely when all the elements are parallel.

IF POSSIBLE LET THE ANTENNA SET OVERNIGHT AND FINALLY TIGHTEN AND ADJUST ONCE MORE JUST PRIOR TO INSTALLATION. This suggestion is just to reduce the need for any re-tightening or re-adjustment after installation. The Dacron doesn't really stretch like nylon or poly but it has to be under tension a while to take an INITIAL SET as do the nuts, bolts and screws.

19. Depending on your installation requirements, a section or the complete feedline can be added now. Attach the cable carefully to the female'N' connector and tighten. Tape up or add Coaxseal if you feel compelled. Route the feedline down the boom securing it with Nylon ties provided. These ties are UV (sunlight) stabilized but if you are concerned, a couple of wraps of black electrical tape over the tie will keep it strong for a loooooong time. The cable can be routed to the bottom side of the boom, making the transition between D3 and D4. Keep the coax centered as it passed over or under any elements. If you use RG-8 type coax, be careful not to pull those heavy duty nylon ties too tight as they ar strong enough to badly distort the shape of your coax.

20. That's about it for the stuff on the ground. You should check all the bolts and nuts one more time (they take a set and relax a bit over night just like the Dacron). Use all the normal precautions while installing your 6M-2.5WL. CRANK DOWN or LOCK UP your tower before climbing and watch out for those HIGH TENSION LINES. Be sure to use a SAFETY BELT. We need your BIG,soon to be BIGGER, signal on 6!

6M-2.5WL
ANTENNA DIMENSIONS

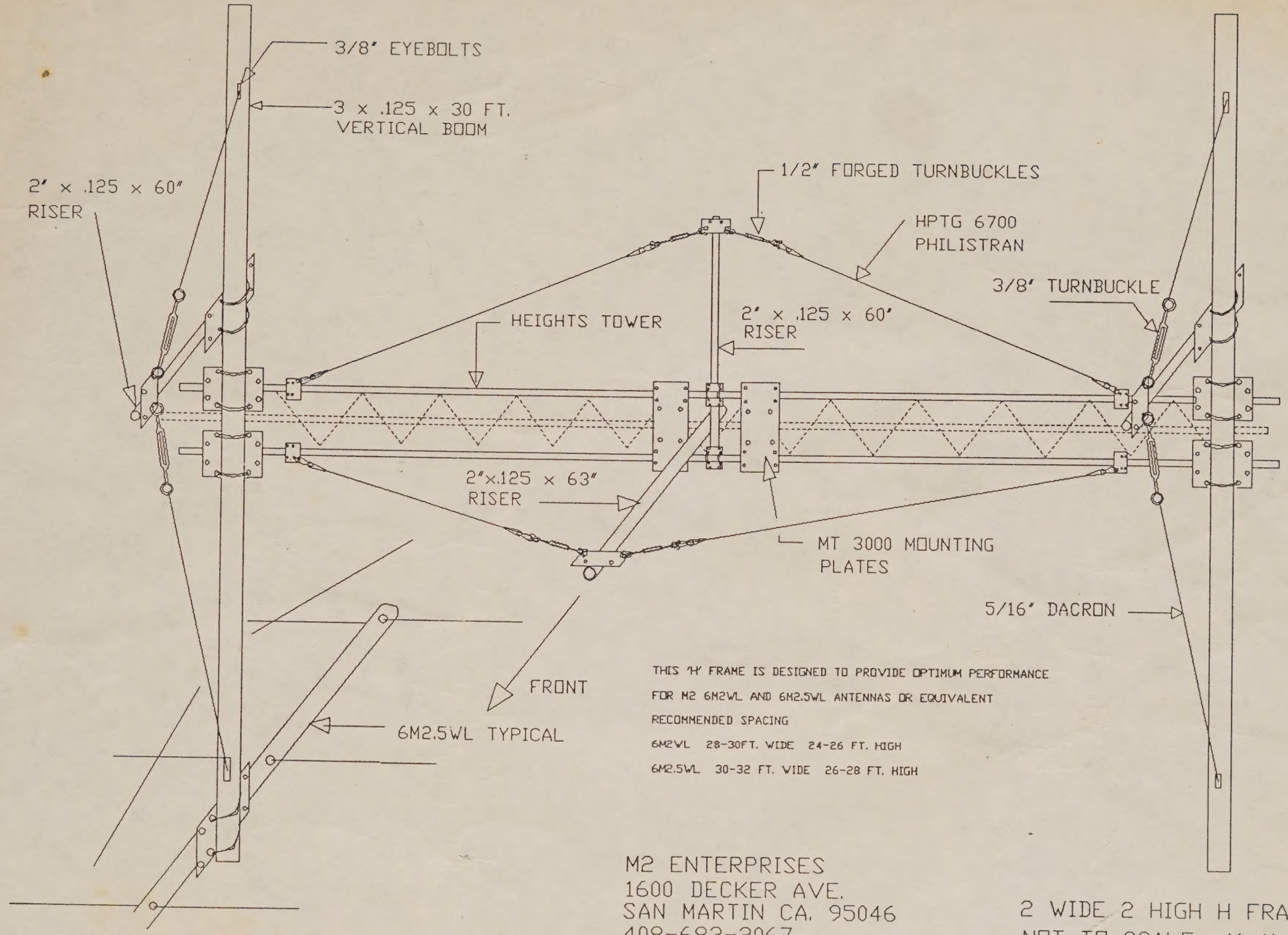


element spacing	element length	exposed half len.
1.0	117.0	57.5
55.5	113.50	
61.5	105.0	51.5
83.875	109.0	53.5
124.375	109.0	53.5
175.250	106.125	52.062
232.375	106.5	52.0
300.875	106.0	51.75
371.250	104.0	50.75
445.625	104.0	51.0
528.375	106.0	52.0
605.0	105.5	51.75

6M-2.5WL Revised July 7, 1988
PART LIST Mar,21 1988

DESCRIPTION	QTY
Boom section, 2-1/2 x .065 x 120" alum. swgd one end	1
Boom section, 2-1/2 x .065 x 120" alum. swgd both ends	1
Boom section, 2 x .058 x 120 alum.swaged one end.	2
Boom section, 2 x .058 x 74 alum.	2
Boom to mast plate 6 x 8 x 3/16" alum	1
Turnbuckle plate 2 x 4 x 3/16" alum.	1
Support rope, Dacron 5/16" x 41'	1
Turnbuckle, 3/8 alum.	2
Driven Element connector block assembly	1
Consists of:	
Tube, 3/8 x .049 x 56 alum. 6061-T6	2
Rod, 1/4" x 10" alum. slit .023 x .357	2
Tab, 1/4 x 1-1/4" x .022 copper	2
'F' conn. female w/ 'O'ring	2
'N' conn. female w/ 'O'ring	1
Sleeve, Delrin 5/8 x 1-1/2" drilled .377 I.D.	2
Housing, 3 x 1 x 1-1/4" alum. machined, alodined	1
Cap, 5/8" (for access hole)	1
Set screw, 1/4-20 x 3/16" internal hex, stainless	2
Sealant, RTV/silicone as required	1
Tube 3/8 x 105" alum.	1
Shorting bar 1/4 x 3/4 x 7" alum. alodined	2
Balun, RG-6 x half wave 'F' conns.	1
Parasitic Element reflector 1/4 x 117.0 with 3/8 slv	1
" " Director #1 1/4 x 109.0 " "	1
" " " #2 " 109.0 " "	1
" " " #3 " 106.125 " "	1
" " " #4 " 106.5 " "	1
" " " #5 " 106.0 " "	1
" " " #6 " 104.0 " "	1
" " " #7 " 104.0 " "	1
" " " #8 " 106.0 " "	1
" " " #9 " 105.5 " "	1
U-bolt 2-1/2"	2
U-bolt 2" (Other sizes to fit mast optional)	3
Nylon ties, heavy duty, black	6
Assembly instructions	1
IN HARDWARE BAG/BOX	
Eyebolt, 5/16 x 4"	2
Button insulator, Black polyethylene, molded	22
Bolt, 1/4-20 x 3" stainless, hex-cap	2
Bolt, 1/4-20 x 2-1/2" stainless, hex-cap	8
Bolt, 1/4-20 x 2-1/4" stainless, hex-cap	1
Nut, 1/4-20 locking, stainless	10
Nut, 5/16-18, stainless	12
Push tube tool, 5/8 x 3" plastic	1
Lockwasher, 5/16" stainless	12
SUB-BAG	
Element Keeper washer,stainless	22
Set screw, 8-32 x 3/16" stainless, internal hex	4
Allen wrench, 5/64	1

6 METER 'H' FRAME



THIS 'H' FRAME IS DESIGNED TO PROVIDE OPTIMUM PERFORMANCE

FOR M2 6M2WL AND 6M2.5WL ANTENNAS OR EQUIVALENT

RECOMMENDED SPACING

6M2WL 28-30FT. WIDE 24-26 FT. HIGH

6M2.5WL 30-32 FT. VIDE 26-28 FT. HIGH

M2 ENTERPRISES
1600 DECKER AVE.
SAN MARTIN CA. 95046
408-683-2067

2 WIDE 2 HIGH H FRAME
NOT TO SCALE 11-11-88